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7. The method of claim 6, wherein the third matching score is an average of the first matching score and the second matching score.

8. The method of claim 1, wherein the user is being illuminated simultaneously with both the flood infrared illumination and the patterned infrared illumination while the at least two images are captured by the camera.

9. A device, comprising:

a computer processor;

a memory;

a camera;

a user interface coupled to the computer processor;

at least one illuminator configured to provide flood infrared illumination and patterned infrared illumination;

circuitry coupled to the camera and the illuminator, wherein the circuitry is configured to:

receive, on the user interface, an unlock request for the device from a user;

in response to receiving the unlock request, illuminate the user with both flood infrared illumination and patterned infrared illumination from the at least one illuminator;

capture a series of images of the user using the camera, wherein at least some images in the series of images are captured while the user is being illuminated with both the flood infrared illumination and the patterned infrared illumination from the at least one illuminator, and wherein at least one image in the series of images is captured while the user is not being illuminated by the at least one illuminator;

generate flood infrared image data from the captured images; and

generate depth map image data from the captured images; and

authorize the user to perform at least one operation on the device that requires authentication using a facial recognition authentication process operating on the flood infrared image data and the depth map image data.

10. The device of claim 9, wherein the at least one illuminator comprises a first illuminator and a second illuminator, wherein the first illuminator is a flood infrared illuminator and the second illuminator is a patterned infrared illuminator.

11. The device of claim 9, wherein the at least one illuminator comprises a single illuminator that provides both flood infrared illumination and patterned infrared illumination.

12. The device of claim 9, wherein the user interface is a display of the device.

13. The device of claim 9, wherein the circuitry is configured to parse image data in the captured images to generate the flood infrared image data separate from the depth map image data.

14. The device of claim 9, wherein the captured images comprise images of a face of the user.

15. A method, comprising:

receiving, on a user interface associated with a device comprising a computer processor and a memory, an unlock request for the device from a user;

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in response to receiving the unlock request, capturing a series of images of the user using a camera located on the device, wherein at least one of the images in the series is captured while the user is being illuminated with both flood infrared illumination and patterned infrared illumination provided by at least one illuminator on the device, and wherein at least one of the images in the series is captured while the user is not being illuminated by the at least one illuminator;

wherein the series of images comprises a pseudo-random sequence of images captured while the user is being illuminated by the at least one illuminator and images captured while the user is not being illuminated by the at least one illuminator;

comparing the pseudo-random sequence of the captured images in the series to a predetermined pseudo-random sequence for the series generated by the device; and operating a facial recognition authentication process in response to the pseudo-random sequence of the captured images in the series being determined to be the same as the predetermined pseudo-random sequence, wherein the facial recognition authentication process operates to authorize the user to perform at least one operation on the device that requires authentication.

16. The method of claim 15, wherein the predetermined pseudo-random sequence is generated by a secure enclave processor on the device.

17. The method of claim 15, wherein comparing the pseudo-random sequence of the captured images in the series to the predetermined pseudo-random sequence for the series is performed by a secure enclave processor on the device.

18. The method of claim 15, further comprising generating separate flood infrared image data and depth map image data from one or more of the captured images, and using at least the generated flood infrared image data in the facial recognition authentication process.

19. The device of claim 9, wherein the circuitry is configured to:

generate at least one flood feature vector from the flood infrared image data;

generate at least one depth map feature vector from the depth map image data;

compare the at least one flood feature vector to one or more flood reference templates stored in the memory of the device to obtain a first matching score;

compare the at least one depth map feature vector to one or more depth map reference templates stored in the memory of the device to obtain a second matching score;

determine a third matching score based on the first matching score and the second matching score; and

authorize the user to perform the at least one operation on the device that requires authentication in response to the third matching score being above an unlock threshold.

20. The device of claim 9, wherein the circuitry is configured to generate the flood infrared image data from image data in areas of the captured images that are between features in the patterned infrared illumination.

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